CLAIMS

We claim:

1. A purified hybrid polypeptide sequence, identified as Seq. ID NO. 6, comprising a vasoactive intestinal peptide component and a growth hormone releasing hormone component, wherein said hybrid sequence is capable of selectively binding to and antagonizing a cellular VPAC1 receptor at significantly lower concentrations than those concentrations at which it binds to and antagonizes a cellular VPAC2 receptor.

2. The polypeptide sequence of claim 1 wherein said sequence selectively inhibits the binding of PACAP27 to cell membranes expressing the VPAC1 with an IC50 of about 0.1 nM to about 10 μM.

3. The polypeptide sequence of claim 1 wherein said sequence selectively inhibits the binding of PACAP27 to cell membranes expressing the VPAC1 with an IC50 of about 0.5 nM to about 1 μM.

4. The polypeptide sequence of claim 1 wherein said sequence selectively inhibits the binding of PACAP27 to cell membranes expressing the VPAC1 with an IC50 of about 1.0 nM to about 100 nM

5. The polypeptide sequence of claim 1 wherein said sequence inhibits the VIP-mediated generation of cAMP with an IC50 of about 0.1 nM to about 10 μM.

6. The polypeptide sequence of claim 1 wherein said sequence inhibits the VIP-mediated generation of cAMP with an IC50 of about 0.5 nM to about 1 μM.

7. The polypeptide sequence of claim 1 wherein said sequence inhibits the VIP-mediated generation of cAMP with an IC50 of about 1.0 nM to about 100 nM.

8. The polypeptide sequence of claim 1 wherein said sequence inhibits the proliferation of H727 cells with an IC50 of about 0.1 nM to about 10 μM.

9. The polypeptide sequence of claim 1 wherein said sequence inhibits the proliferation of H727 cells with an IC50 of about 0.5 nM to about 1 μM.

10. The polypeptide sequence of claim 1 wherein said sequence inhibits the proliferation of H727 cells with an IC50 of about 1.0 nM to about 100 nM.

11. A method of treating a human disorder in which the purified VPAC1 is overexpressed, comprising the steps of:

a) providing a human having a condition in which VPAC1 is expressed in certain cells; and
b) administering to said human an effective amount of a purified VPAC1 antagonist until said human condition is ameliorated.

12. A purified hybrid polypeptide sequence selected from the group consisting of SEQ ID NOs. 4 and 5, coupled to a non-protein polymer selected from the group consisting of polyethylene glycol, polypropylene glycol and polyoxyalkylenes wherein said sequence comprises a vasoactive intestinal peptide component and a growth hormone releasing hormone component, and wherein said hybrid polypeptide sequence selectively binds to and antagonizes VPAC1 receptor at significantly lower concentrations than those concentrations at which it binds to and antagonizes VPAC2 receptor.

13. The polypeptide sequence of claim 12, wherein said polypeptide selectively inhibits the binding of PACAP27 to cells expressing the VPAC1 with an IC50 of about 0.1 nM to about 10 μM.

14. The polypeptide sequence of claim 12, wherein said polypeptide selectively inhibits the binding of PACAP27 to cells expressing the VPAC1 with an IC50 of about 0.5 nM to about 1 μM.

15. The polypeptide sequence of claim 12, wherein said polypeptide selectively inhibits the binding of PACAP27 to cells expressing the VPAC1 with an IC50 of about 1.0 nM to about 100 nM.

16. The polypeptide sequence of claim 12, wherein said polypeptide selectively inhibits VIP-mediated generation of cAMP with an IC50 of about 0.1 nM to about 10 μM.

17. The polypeptide sequence of claim 12, wherein said polypeptide selectively inhibits VIP-mediated generation of cAMP with an IC50 of about 0.5 nM to about 1 μM.

18. The polypeptide sequence of claim 12, wherein said polypeptide selectively inhibits VIP-mediated generation of cAMP with an IC50 of about 1.0 nM to about 100 nM.